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Japan as an Economic Power

BY LAWRENCE K. ROSINGER

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Japan as an Economic Power

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AS the Japanese war machine moves across land and sea in Southeast Asia, it becomes increasingly difficult to reconcile military developments in that area with most American estimates of Japan's economic strength made before Pearl Harbor. Less than four months ago prevailing opinion held that Japan had been so weakened by war in China that it could no longer prove a dangerous opponent of another major power. Although doubts were expressed concerning the soundness of this view, the dissenters, in general, were unable to explain why a strong Japan could not defeat China, nor could they answer effectively various statistical "proofs" of Japan's weakness. It is true that our economic knowledge was rather fragmentary, because Tokyo had gradually ceased to publish essential data. Nevertheless, we had enough information to draw more accurate conclusions. What was lacking was a correct frame of reference within which available facts could have been given their proper weight.

There was a general failure in the United States, for example, to understand that wars are fought with men and equipment available at a particular place and time, and not with the fighting power that might be put on the battle line at some future date. On December 7, 1941 Japan's economy was greatly inferior to that of the United States in resources and all-over productive capacity, but greatly superior in matériel and trained troops ready for battle. This advantage was increased by a successful strategy of surprise attack, particularly since Japan was thousands of miles closer to the theatre of war than either Great Britain or the United States. Under the circumstances, it made no difference that the United Nations could ultimately outproduce Japan, for the military decisions were being made simultaneously with our own preparations for war. Briefly, we were in the position of opposing Japan's war "actual" with American war potential.

Another mistake, also revealing Western complacency, was the refusal of many observers to take Japanese aggression seriously. A small group in Britain and the United States thought that it was possible to work with Japan; a larger one believed that Japan would not dare to attack. Japan's situation was measured by the yardstick of peacetime economic conditions in the United States, and much stress was placed on the fact that the Japanese national debt was mounting or that prices in Tokyo were rising faster than wages. These developments, to be sure, were significant, but their mere existence did not indicate that either the price or debt situation in Japan was out of hand. It was not sufficiently understood that these weaknesses were due not to an impending breakdown of Japan's system but to the effort to establish a more powerful war economy. Japan's deficiencies were seldom interpreted in the light of war preparations.

Similarly, undue emphasis was placed on criticism within Japan. Every effort was made, particularly by those who hoped to appease Tokyo, to discover differences of opinion among Japan's rulers, even to the extent of describing the Emperor as a bulwark of peace or of considering General Tojo's appointment as Premier in October 1941 a possible sign of "a more moderate policy." There is no doubt that Japanese economy and politics are honeycombed with conflicts, but almost every such difference has finally been subordinated to the dominant militaristic policy.[1]

There is yet another error concerning Japan that could prove most dangerous if it were to persist.

1. See Hugh Byas, *The Japanese Enemy* (New York, Knopf, 1942), p. 68.

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This is the common view that the side with the greater resources and capacity will necessarily win, because wars are simply conflicts of opposing economies. Such a view is far from being correct, for a nation's wartime economy can achieve only those results permitted by existing economic, social, political and military strategy. The ability to enlist the full support of a colonial ally, the imagination to seize military opportunities as they offer themselves, the determination to root out potential Quislings —all these non-economic factors not only are worth more than a million tons of steel, but where they are present the flow of raw materials and finished products will very likely be at a maximum. It is necessary to discard completely the notion that the United States will defeat Japan simply because of superior productive power. Such an advantage can be decisive only if it is properly utilized as part of general strategy.

Although economic considerations are not necessarily supreme, much can be learned from study of Japan's economic strength. The main objective of this analysis is to throw light on Japan's position and problems in order to appraise, at least in part, the kind of enemy we are facing in the Far East. This can be done, first of all, by discussing Japan's economy before Pearl Harbor and, second, by considering the extent to which the advance into Southeast Asia may contribute to the solution of some of Japan's economic difficulties.

JAPAN'S INDUSTRIAL FRONT

Japan has been brought very close to its maximum military production by means of the strictest state supervision and control. Not only did the government build up key industries in the late nineteenth and early twentieth centuries, but today it owns and operates arsenals, shipyards and munitions plants, and the railway, postal, telegraph, telephone and radio services, as well as monopolies of tobacco, camphor and salt. Even before the war with China there were many semi-official companies (joint public-private enterprises), chiefly in banking, communications and colonial development. Moreover, the government carefully controls the personnel and policies of many privately established institutions. This is not to suggest, however, that great economic families, such as Mitsui, Mitsubishi and Sumitomo, have not possessed considerable initiative of their own.[2]

In the six years from 1931 through 1936, i. e., approximately from the invasion of Manchuria until the outbreak of war with China, new capital issues amounted to almost seven billion yen (perhaps U.S. $2,000,000,000—but worth much more in purchasing power). Heavy industry experienced a great expansion, caused partly by general economic conditions, but chiefly by a deliberate government policy of arms expenditure and direct or indirect subsidization of war output. This was a period of growing technical efficiency and labor productivity. Rapidly standardizing the metal and engineering industries, Japan became almost self-sufficient in rolling stock and most textile and electrical machinery. The production of the machine-building industry, including machinery, rolling stock and shipbuilding, declined in value from Y682.2 million in 1929 to Y443.3 million in 1931 but rose to Y2.4 billion in 1937 and Y3.6 billion in 1938—a very striking increase despite the rise in prices. The number of workers in this industry grew from 158,000 in 1931 to 602,000 in 1937, and invested capital trebled. In 1938 there were 860,000 workers. Although still dependent on imports of high quality steels, certain machine tools, motor trucks and aircraft, Japan could produce many of the finished steel products needed at home and also export some machinery (chiefly, however, to the controlled Manchurian market).[3]

Effect of War in China on Production

With the beginning of China's national resistance in 1937, Japan's chief industrial problems were to supply the armed forces effectively and to speed up the establishment of heavy industry at home and in Manchuria. Government control gradually became all-embracing through an almost steady flow of new laws or orders, of which the Law Concerning Temporary Measures for Export and Import Articles, the Temporary Capital Control Law, and the National Mobilization Law were the most important. The first of these harnessed foreign trade to the war machine; the second ended the investment of capital in non-essential industries; the third granted the government vast general powers over economic life. Many supplementary acts dealt in detail with specific fields. The net result was to make the government an increasingly powerful master over all significant aspects of the country's economic activity.

In 1937 Japan was by no means on the same industrial level as the great Western powers, for

2. G. C. Allen in *The Industrialization of Japan and Manchukuo, 1930-1940*, edited by E. B. Schumpeter (New York, Macmillan Co., 1940), pp. 728-31; Kate Mitchell, *Japan's Industrial Strength* (New York, Institute of Pacific Relations, 1942), pp. 5, 7.

3. *Kojo tokeihyo* (Factory Statistics), issued by Ministry of Commerce and Industry, 1940, pp. 5, 855; G. C. Allen, *Japanese Industry: Its Recent Development and Present Condition* (New York, Institute of Pacific Relations, 1939), pp. 6-10, 37ff; *Industrial Japan: Aspects of Recent Economic Changes as Viewed by Japanese Writers* (New York, Institute of Pacific Relations, 1941), pp. 83-92; *National City Bank of N. Y. Bulletin*, January 1942, p. 8.

many factories were small and relatively unspecialized, while the major new processes had to be secured from other countries. The economic development of 1931-36 actually resulted in greater dependence on foreign raw materials, especially crude oil, copper and rubber. Moreover, imports of the following categories of goods, as a whole, more than tripled in value between 1931 and 1937, and rose relatively from 22.4 to 38.1 per cent of total purchases abroad: drugs, chemicals and explosives; dyes, pigments, coatings and filling matters; ores and metals; metal manufactures; clocks, watches, scientific instruments, firearms, vehicles, vessels and other machinery.[4]

Before 1937 light industry continued to expand, even though heavy industry leaped ahead; but after the so-called "China Incident" everything went to feed the war machine, while production for civilian needs was curtailed and often crippled. In 1936 the metals, machinery and chemical industries accounted for 49.2 per cent of the total gross value of production, in 1937 54.7 per cent, in 1938 61.2 per cent, and in 1939 61.8 per cent.[5] In 1938 the chemical industry alone accounted for 17.9 per cent of the total value of Japan's industrial output, and employed 322,205 workers. Despite shortages of coal, labor and equipment, the industry had considerable success, for example, in the production of dyestuffs.[6]

Under the impetus of war, there was a further concentration of Japanese production. According to official statistics, in September 1940 employment was approximately 32 per cent below September 1939 in metal-manufacturing concerns with less than 50 workers, but had increased by 8.3 per cent in plants with more than 50 workers. This was a trend characteristic of industry in general. At the same time, the government promoted the concentration of ownership. During the period between September 1936 and December 1938 there were 184 mergers, involving a capital of almost one and three-quarter billion yen, but in 1940 alone 161 corporate mergers took place, with a capital of not far from three and three-quarter billion yen. This represented a considerable growth of cartelization. Although the concentration of production and ownership was due to the prevailing shortage of materials, labor and equipment, it presumably increased the efficiency of Japanese industry.[7]

Possibilities for Expansion

Foreign observers who sought evidence of Japan's economic weakness before the war often pointed out a recession in Japanese production. A leading Japanese economic publication seemed to support this view when it stated in 1940: "Since the summer of 1939, economic activity in Japan has been declining steadily from the peak point which it then reached as shown in the Department of Commerce and Industry index." On the other hand, with reference to certain production statistics, the same source declared: "It is hardly necessary to reiterate that these indices do not cover the munitions industries."[8] There is no adequate way of determining whether the phrase "munitions industries" is to be understood broadly, as including all important war industries, or narrowly, in the sense of industries producing military supplies and equipment. Indirect evidence suggests that some leading war industries, or parts of them, have been omitted, but that the figures relate to more than civilian production.

Despite the difficulty of interpreting the indices, it is clear that Japanese production declined sharply after reaching a peak in the summer of 1939. It is also evident—leaving aside the probable decline in the quality of goods—that labor productivity had fallen considerably, thus affecting output. This was the natural result of such factors as the employment of large numbers of inexperienced workers and the working of low-grade mines. It is therefore not surprising that, *according to the published material,* August 1940 production in all fields but one —metals and machinery—was below 1937.[9]

On the other hand, although some sources assert that the decline in production continued into 1941, Japanese statistics, as given below, indicate that within aproximately a year the losses had more than been made up, except in consumers' goods. The data in this table are consistent with the fact that in late 1939 and a good part of 1940 Japan faced a very severe shortage of electric power and coal, as a result of which many plants had to either close down temporarily or curtail operations. Since, however, the coal and power situation later improved, it would be natural for some industrial recovery to take place. Approximately the same

4. *Industrial Japan,* cited, p. 107; *The Industrialization of Japan and Manchukuo, 1930-1940,* cited, pp. 365-66.

5. Figures from *Tokei Geppo* (Statistical Monthly), cited by A. J. Grajdanzev in *Far Eastern Survey* (New York), April 7, 1941, p. 70.

6. *The Economist* (London), January 3, 1942, p. 21; U.S. Department of Commerce, "Japan—Chemical Developments Abroad in 1940," *Industrial Reference Service,* Part I, June 1941; *Kojo tokeihyo* (Factory Statistics), pp. 5, 15.

7. U.S. Department of Commerce, "Economic Conditions in Japan During 1940 and Early 1941," *International Reference Service,* June 1941, p. 4; *Foreign Commerce Weekly,* March 8, 1941, p. 400.

8. *The Oriental Economist* (Tokyo), December 1940, pp. 697, 701.

9. *Far Eastern Survey,* April 7, 1941, p. 70.

trend is shown in the index of total factory employment (1926=100), which reached a high of 144.9 in November 1939, fell to its lowest point of 143.5 in February 1940 and was 152.5 in June 1941.[10]

INDEX OF PHYSICAL VOLUME OF PRODUCTION*
(1931-1933=100)

	Aug. 1939	*Feb. 1940*	*Sept. 1940*
General industrial production	189.5	163.9	191.9
Producers' goods	254.2	221.2	272.3
Consumers' goods	124.3	106.1	110.7

The Oriental Economist, December 1940, p. 697; *ibid.*, February 1941, p. 73. Of the months given above, August 1939 represents the index peak for general industrial production and producers' goods, and February 1940 the lowest point of the ensuing decline. September 1940 is the latest month for which figures are available and also the first in which the August 1939 levels were exceeded. Consumers' goods did not follow this trend, but the same months are given for the purpose of comparison.

It is probably correct to say that Japan has the prospect of only a moderate expansion in productive capacity, and that its output of finished products must appear almost static in comparison with the economic power of the United States. It is estimated, for example, that in 1940 Japan produced and imported machine tools valued at $70,000,000, while the United States had a home production of $750,000,000 worth of machine tools in 1941—almost eleven times as much.[11] On the other hand, from the immediate point of view, the smallness or relatively limited prospects of Japanese production are of no great consequence for the outcome of events in Southeast Asia, owing to the unpreparedness of the United States in that theatre of war.

Ship, Tank and Airplane Production

Any discussion of Japanese industry requires consideration of the three major war industries—automobiles (tanks), airplanes and ships—even though available information is scanty. There are, for example, no figures on Japan's production of tanks and other military vehicles, but civilian output of passenger cars, trucks and buses is said to have totaled 18,800 in 1939 and 23,525 in 1940, as compared with the United States' output of 3,577,292 and 4,469,354 units respectively. The 1940 Japanese production was composed of 23,000 trucks, 75 passenger cars, and 450 buses.[12] Japan's total registration of motor vehicles as of January 1, 1941 was 119,050, while that of the continental United States was 32,452,861.[13] It is known that in 1941 Japanese civilian output declined considerably, for early in the year Toyota and Nissan, the only two important manufacturers, had to cut their daily production by about one-third.[14] It must be assumed, however, that this simply indicates the early conversion of the civilian automotive industry to military production, apart from the probability that other plants had for some time been devoted entirely to tanks.

Estimates of Japan's aircraft production vary greatly. One observer before the war placed the output of all types of military planes, including training craft, at 250 a month, or about 3,000 annually. Later a figure of 300-600 a month, or 3,600-7,200 annually, became popular. Recently one writer has cited, without proof, a maximum production of 1,000 a month, or 12,000 a year, while another has repeated the early figure of 250. Although it obviously makes a great difference to us whether Japan produces 3,000 or 12,000 planes a year, there is no published evidence concerning the actual situation.[15] Japanese planes have certainly been of unexpectedly high quality but it seems clear that, despite Tokyo's present air superiority in Southeast Asia, the United States is capable of vastly outproducing Japanese industry.

At the end of June 1939, Japan had 5,630,000 gross tons of shipping (all ships of over 100 gross tons), or 8.3 per cent of the world total, a figure exceeded only by the British Empire with 21,002,000 gross tons (30.7 per cent) and the United States with 11,490,000 gross tons (16.8 per cent). This represented an increase of almost one-third in Japan's merchant marine—the largest gain made by any nation in the eight years after the invasion of Manchuria. Greater subsidies for shipping and shipbuilding during the period 1931-36 had helped to give Japan a fast and modern merchant fleet. In 1937, 455,000 gross tons of shipping were produced, and the same amount in 1938, but no official statistics have been issued since June 1939, when the shipbuilding program bogged down. The industry undoubtedly suffered from the general shortage of labor as well as the difficulty of securing essential materials, especially metals. Giving increased attention to the building situation, the government was said in 1941 to be encouraging construction of wooden craft and reduction of the standard types of vessels from seven to two. In the

10. *The Oriental Economist*, September 1940, p. 568; October 1941, p. 539.

11. *National City Bank of N. Y. Bulletin*, January 1942, p. 11.

12. U.S. Department of Commerce, "World Production and Trade in Motor Vehicles During 1940" (compiled by Etteline Flehr), *Industrial Reference Service*, Part 9, August 1941, pp. 2, 8.

13. "World Registration of Motor Vehicles as of January 1, 1941" (compiled by Etteline Flehr), *ibid.*, August 1941, pp. 5, 6.

14. "The Japanese Automotive Industry—First Half 1941," *ibid.*, September 1941, p. 1.

15. *Far Eastern Survey*, June 16, 1941, p. 127; *The New York Times*, February 8, 1942, Section 4, p. 4; *New York Herald Tribune*, March 19, 1942, p. 2.

fall of 1941 it was reported that 48 out of 78 shipping companies would be eliminated, and that the government would manage the main yards as well as plants producing ship engines and parts.[16]

There is no question that Japanese trade has faced a tight shipping situation during the past few years, a fact which has led to much speculation concerning the country's ability to support troops in Southeast Asia and to bring back vital raw materials. It is necessary to recognize, however, that the pre-war shortage was primarily one of space for non-essential commodities, and that vital articles did come through in adequate quantities, as indicated by Japan's success in building up stocks. Once again, war preparations were the paramount consideration. In addition, from the point of view of present conditions, it is important to note that a certain number of Japanese vessels were engaged in trade over the long routes to the Western Hemisphere and Africa. These will now be available in the Far East. At the same time, since the war has shortened its lines of communications, the Japanese fleet will be able to make more trips in a given period and (excluding sinkings) will therefore, in effect, be a larger fleet than a year ago.

Consequently, one significant thing to watch is the destruction of Japanese noncombatant vessels, for Japan does not have a large margin of shipping safety. A United States Navy spokesman has stated that from December 10 through February 24 American forces sank 38 noncombatant ships, totaling 120,000 to 180,000 tons, or much more than Japan can replace at its recently estimated annual capacity of 400,000 to 500,000 tons of such vessels.[17] The significance of this situation, however, depends on whether Japan continues to lose ships at approximately the same high rate as during the conquest of the areas now in its possession. It is also important to note that Japan's shipping problem may be relieved somewhat if Tokyo has seized foreign vessels in the course of invasion. It is also possible that seizure of rice and oil in Southeast Asia may reduce the amount that must be shipped to maintain the Army and Navy in the conquered areas.

RAW MATERIAL RESOURCES

Before Pearl Harbor much weight was placed on Japan's deficiencies in important raw materials as a deterrent to war with Britain or the United States. It was not adequately realized that for years Japan had been building up large stocks of essential commodities, especially those that had to be imported. These stocks were accumulated by three principal methods. First of all, there was considerable economy in the use of materials originally earmarked for the war in China, and it is no underestimation of China's effective resistance to point out that Japan has not thrown its full strength into that conflict. A second measure was the tightening of foreign trade and exchange control, to end non-military imports and reduce exports to the minimum needed for exchange. Third, the standard of living of the people was cut sharply through the rationing of foodstuffs, clothing materials and household goods, while compulsory savings were steadily increased, in order to secure more money for government bonds and to limit the demand for commodities.

Japan's general raw materials position can perhaps be presented most effectively by quoting a British statement made at the end of July 1941: "Of all the major countries, Japan to-day would appear to be, in relation to its economic capacity and eventual war requirements, the best stocked. . . . Both the Japanese Army and Navy to-day hold—in Japan proper, Korea, Manchuria and Japanese-occupied China—unusually large stocks, not only of arms, munitions, and other military and naval equipment, but also of raw materials and fuel. Such stocks include large quantities of iron ore, iron and steel scrap, coal, fuel oil, gasolene, lubricants, rubber, non-ferrous metals, rice, clothing material and leather. Many private industries essential for war have been induced to hold large stocks of this sort in reserve for a sudden emergency, and instructed not to touch them for current consumption . . . reliable observers agree that these supplies are large enough to cover Japanese wartime requirements for periods ranging, in the various goods, from six to fifteen months. It is estimated that they will permit Japan . . . to fight a southward *blitzkrieg* for a duration of some six months."[18]

Scrap Iron and Steel

Like Italy, Japan has from the beginning based its metals industries chiefly on imports. With regard to iron ore, for example, 620,000 metric tons were produced in Japan proper in 1936, 243,000 metric tons were imported from other parts of the Empire, and 3,780,000 metric tons came from foreign countries, principally China, the Philippines, Malaya and Australia.[19] Since then, the relative importance of home and Empire production has increased.

16. K. R. C. Greene and J. D. Phillips, "An Economic Survey of the Pacific Area," Part II, *Transportation and Foreign Trade* (New York, Institute of Pacific Relations, 1942), p. 25; *Far Eastern Survey*, May 5, 1941, pp. 91-92; *Foreign Commerce Weekly*, March 1, 1941, p. 373; July 26, p. 34; August 16, p. 41; October 4, p. 20; October 18, p. 18; December 6, p. 17.

17. *New York Herald Tribune*, February 26, 1942, p. 1.

18. *The Economist*, September 6, 1941, p. 292.

19. *The Industrialization of Japan and Manchukuo, 1930-1940*, cited, p. 256.

Scrap iron and steel, chiefly purchased abroad, have played a striking role in the steel industry, and pig iron has been less important than in other industrial countries. Imports came mainly from the United States, which shipped to Japan 7.4 million metric tons of ferrous scrap in the five years 1936-40, almost half of total U.S. exports of 15.68 million metric tons.[20] Japan has at the same time left no stone unturned in gathering domestic scrap, and has also tried to conserve supplies by using larger quantities of pig iron in steel production. This, however, raised certain new difficulties, since pig iron depends on the availability of iron ore, and its use requires processes and machinery different from those employed in the manufacture of steel from scrap. Nevertheless, Japan's pig iron output has risen in striking fashion from 1.2 million metric tons in 1930 to over 2 million in 1936 and 3 million in 1939. On the other hand, it is worth noting that in 1939 United States production was more than ten times as great. Japan has particularly stressed the development of pig iron capacity during the past few years, even though actual production has lagged for lack of iron ore and coal. If larger quantities of these raw materials should become available, production could rise to new levels.[21]

Japan's steel output virtually tripled in the decade from 1930 to 1940. Estimates vary, but one source suggests a record figure of 7.5 million metric tons for Japan and Manchuria in 1939, to which must be added the statement of an official United States publication that Japanese steel production reached a new high in 1940. In 1941 there were also signs of a drive to raise capacity further. The general opinion is that Japan's recent production has been between 7 and 8 million metric tons, although a Japanese source suggested in October 1940 that the official goal of 10 million tons might be reached by the end of 1941.[22] Even in the event of such an achievement, Japan's production would be very small in comparison with our own steel output of approximately 75,000,000 metric tons last year.

Japan's Coal Supplies

Before the war in China, Japan's coal supplies were considered much more adequate than its output of iron ore. It is true that the country has at no time been self-sufficient in anthracite and coking coal, but imports have been available from Manchuria, North China and Indo-China. In 1936 Empire coal production was approximately 60 million metric tons, a figure which is said to have mounted to 66.1 million in 1937 and 77 million in 1938. Nevertheless, Japan proper experienced a serious coal shortage in the winter of 1939-40. The chief reasons appear to have been a more rapid increase in consumption than supply, reduction of Manchurian coal exports because of industrial growth in that region, serious shortages of labor and equipment, and the decline of labor productivity in the mines. There is no doubt that the shortage of coal proved a serious obstacle to Japanese industrial activity, upsetting production schedules for many other vital commodities, although presumably civilian industries were hardest hit.[23]

In this connection it is important to note that Japan has also found it difficult to secure an adequate amount of electric power. In 1940 a serious drought, supplemented by the coal shortage, resulted in a very drastic curtailment of power consumption. Although limitations on the industrial use of electricity were relaxed in March 1941, curbs on consumption for illumination were retained—and made even more severe in the fall of 1941. Japan's total electric power capacity in 1941 was estimated at 8 million kilowatts, of which 85 per cent was used in industry. This is to be compared with an assured capacity of 33 million kilowatts in the United States.[24]

Oil Production and Consumption

It is not known how much petroleum Japan now produces or consumes. According to one estimate, the figures for Japan and the United States in 1940 and 1941 were as follows:

PRODUCTION OF PETROLEUM AND SUBSTITUTES*
(*in thousands of barrels*)

	1940		1941	
	Crude Oil	*Synthetic and other Substitutes*	*Crude Oil*	*Synthetic and other Substitutes*
Japan	3,439	4,500	3,200	5,000
U.S.	1,353,214	66,017	1,400,000	76,000

*V. R. Garfias, R. V. Whetsel and J. W. Ristori, *World Consumption of Petroleum and Its Substitutes in 1941* (paper presented before the annual meeting of the American Institute of Mining and Metallurgical Engineers, New York City, February 12, 1942). These figures include all Japanese production, but not the leases in Soviet Sakhalin, which are said to have produced 2,000,000 barrels for Japan in 1940.

20. Totals in metric tons have been derived through conversion of short ton figures in U.S. Department of the Interior, *Minerals Year Book, Review of 1940*, p. 519.

21. *Foreign Commerce Weekly*, April 19, 1941, p. 124; May 3, p. 197; July 12, p. 14; October 25, p. 3; *The Industrialization of Japan*, cited, pp. 257-58, 447; *Minerals Year Book, Review of 1940*, cited, p. 558.

22. *The Industrialization of Japan*, cited, p. 449; *Minerals Year Book, Review of 1940*, cited, p. 521; *The Oriental Economist*, October 1940, p. 595.

23. *Far Eastern Survey*, February 14, 1940, pp. 39-45; *National City Bank of N. Y. Bulletin*, January 1942, p. 9; *The Industrialization of Japan*, cited, pp. 388, 424; *Industrial Japan*, cited, pp. 135-36.

24. *Foreign Commerce Weekly*, May 3, 1941, p. 197; May 31, p. 378; November 22, p. 16.

Japan's total production was therefore 7,939,000 barrels in 1940 and 8,200,000 in 1941. According to the same source, Japanese consumption was 26,200,000 and 26,300,000 barrels, respectively. On this basis, production in 1941 met less than a third of requirements. Nor were the prospects favorable for a marked increase in production in the Japanese Empire as of December 6, 1941, even though synthetic production had clearly progressed beyond the experimental stage.

Japan undoubtedly has very large stocks of oil in reserve, chiefly as a result of the steady flow of American and Dutch petroleum. In this there was a kind of division of labor, under which the United States concentrated on the export of crude petroleum to Japan, while the Netherlands East Indies specialized in refined products. In the seven years 1934-40, the United States sold Japan approximately 167 million barrels of petroleum and products, while Japan is said to have received 900,000 metric tons (at least 6,300,000 barrels) under the Dutch-Japanese agreement of November 1940 alone.[25]

OTHER ESSENTIAL COMMODITIES

Japan has not had adequate supplies of cotton and wool from its own territory, but here also one must assume that reserves have been built up. The country is said to require about 70,000 tons of rubber a year, as compared with 600,000 tons needed by the United States, and there seems to be no doubt that this can be secured from Indo-China and Thailand alone, not to mention Malaya and the Indies. There are only three ores, apart from iron ore, in which Japan's production is of significance—copper, magnesium and aluminum. Copper smelter production in 1939 was 104,000 metric tons, which was far below what was needed, but imports of refined copper from the United States alone exceeded this figure. In the five years 1936-40, United States exports of copper and products to Japan and Kwantung totaled over 459,000 metric tons, an average of approximately 92,000 tons annually. Magnesium production in Japan amounted to 1,200 metric tons in 1937 and 4,000 tons in 1940, with a total world production of 19,800 and 39,900 tons, respectively. Japan's aluminum industry began in 1934 with an output of approximately 700 metric tons, but by 1940 production was estimated at 35,000. Nevertheless, 1940 consumption exceeded production by 15,000 metric tons, and the raw material was chiefly imported. These figures are of Lilliputian proportions in relation to existing United States production, or our recently announced plans for an ultimate output of almost 330,000 metric tons of magnesium and 930,000 metric tons of aluminum.[26]

Japan's production of nickel, lead, zinc, antimony, manganese, tin, mica and molybdenum is very small in relation to the country's needs, and the dependence on imports is marked. Here, as in other commodities, there is no reason to doubt that ample forethought was given to the accumulation of stocks. It is impossible, in fact, to put too much emphasis on the well-planned Japanese policy of regulating foreign trade, at least from 1937 on, so that imports consisted almost entirely of articles of military importance, while exports were limited to commodities for civilian consumption. In this connection, it will be enough merely to list the chief items in the trade between Japan and the United States in 1940:

Exports to Japan: cattle hides, raw cotton, lumber, wood pulp, petroleum and products, iron and steel semi-manufactures, steel mill manufactures, ferro-alloys, copper, zinc, lead, aluminum, power-driven metal-working machinery, automobiles and parts, aircraft and parts, borax, carbon black, phosphate rock, ammonium sulphate, potassic fertilizer materials.

Imports from Japan: tuna fish, crabmeat, mink furs, bristles, tea, rubber-soled footwear, pyrethrum flowers, perilla oil, cotton cloth, cotton floor-coverings, cotton rags, hat braids, raw silk, silk fabrics, hats, tissue and similar paper, china and porcelain kitchen ware, earthen and stone ware, zippers, electric lamps, menthol, camphor, brushes, dolls and other toys.

These two lists go a long way toward explaining what has happened in Southeast Asia since December 1941.

JAPANESE FINANCIAL PROBLEMS

Japan has faced serious financial problems during the past few years. The national debt, which was approximately 10.6 billion yen in July 1937 at the outbreak of the China war, was 33.5 billion at the end of August 1941, and is certainly far higher today. Although non-borrowed revenues increased from 1.7 billion yen in the fiscal year 1936-37 to an expected 4.9 billion in 1941-42, the bulk of expenditures has necessarily been met through the sale of bonds. To an increasing extent, these loans have been absorbed by the Bank of Japan (and covered by note issues), indicating a certain weakening of the government's power to borrow.[27] The marked

25. *Far Eastern Survey*, November 17, 1941, p. 254.

26. *Foreign Commerce Weekly*, May 10, 1941, p. 255; *Minerals Year Book, Review of 1940*, cited, pp. 105, 107, 646, 708; *Journal of Commerce* (New York), February 27, 1942, pp. 1, 19.

27. *Foreign Commerce Weekly*, March 22, 1941, p. 472; October 11, p. 18; *Economic Condition in Japan*, cited, p. 6.

rise in note circulation contains a serious danger of uncontrolled inflation, which has so far been held in check by a policy of strictly regulating prices and keeping the income of the population close to the level of subsistence. Under the new conditions since Pearl Harbor this inflationary tendency is certain to become stronger.

Japan's ability to spend a greater proportion of national income on military purposes is also a key question. Not only has the total budget increased approximately six-fold since 1936-37, but war and rearmament expenditures, which formed 6.1 per cent of national income in 1936-37, consumed 26.1 per cent in 1939-40 and 30 per cent in 1940-41. In the latter year the national income was 26 billion yen, and the level may reach 30 billion for 1941-42. If war expenditures for 1941-42 rise as high as 10 billion yen, this would mean spending one-third of the national income for military purposes. While it is true that in 1940-41 Germany spent 57 per cent of its income for war, and the United Kingdom 43 per cent, it is very doubtful whether Japan can greatly exceed its present rate in view of the narrow margin between present living standards and the minimum subsistence level.[28] Nevertheless, political intangibles play a large part here, since the degree of support given the government by the Japanese people is a major factor in determining the possibility of a greater portion of income going for war purposes. On the other hand, a comparison of Japanese and American national income—granted that their production costs are much lower than ours—reveals once more the limitations of Japan's capacity as compared with that of the United States.

Price Control and the Food Supply

Closely linked with financial questions is the problem of prices, which had to be kept down to avoid undue inflation and excessive dislocation of the standard of living, and yet could not be kept below the level necessary for reasonably profitable production, especially of essential articles. Although the government apparently followed a strict policy, both wholesale and retail prices rose sharply, while wages lagged behind. In addition, it became increasingly difficult to secure certain important foodstuffs. Apparently as a result of serious drought in Korea, as well as other factors, the 1939 rice harvest was poor, creating a serious shortage the following year. It is estimated, moreover, that 1940 crops were 8.4 per cent below 1939 in volume. Rationing of most of the common commodities, including the chief foodstuffs, has been in effect for some time.[29] Although Japan on the eve of war had undoubtedly lost its self-sufficiency in foodstuffs, especially rice and sugar, it is important to remember that here, too, much stock-building must have taken place.[30]

The problem of commodities was to a certain extent a problem of international trade, for Japan was carefully husbanding its foreign exchange for the most essential imports. There was consequently a serious conflict between exports to the so-called yen bloc (the Japanese Empire and occupied China) and to foreign countries, since sales of the former type did not bring in gold exchange. This conflict ceased to be a practical issue as Japan's trade with the United States, the British Empire and the Netherlands East Indies came to an end. Another problem remains in the midst of war. That is the question of what to do with the Japanese industries that sold to the foreign currency market, principally the silk and textile industries —not to mention the plight of Japanese importers. There is no doubt that the freezing orders had very serious effects on Japanese light industry and that this sector of Japanese economy has a very bleak immediate future. Nevertheless, textile production may be kept going on a sub-standard basis through the mixture of some cotton and staple fiber for the home market and, on a minimum scale, for the continent and Southeast Asia.

SOUTHEAST ASIA AND JAPAN'S ECONOMY

It would be a serious mistake to underestimate what the Japanese may be able to do with Southeast Asia. It is true that they have derived but slight economic benefit from territory occupied in China since 1937, as a result of effective Chinese guerrilla warfare. On the other hand, in Manchuria, Korea and Formosa, which they hold in subjection, they have built up important bulwarks of their economic machine. It has yet to be shown that the native peoples of the south, except possibly the Filipinos, have been adequately prepared to follow the pattern of resistance adopted by China.

What has Japan done with its colonies? Formosa has become a great source of sugar, rice, bananas, tea, pineapples, sweet potatoes and other farm products, but it also produces alcohol, fertilizers, mineral oil, gold, aluminum, cement, machinery, wood products and coal. Korea, which is more important, although primarily a source of rice, is also an exporter of fertilizer, coal and ores. Power capacity rose from 304,000 kilowatts in 1933 to

28. *Foreign Commerce Weekly*, March 22, 1941, p. 471; League of Nations, *World Economic Survey, 1939/41* (Geneva, 1941), p. 86.

29. *Economic Conditions in Japan*, cited, p. 5; *Far Eastern Survey*, February 26, 1941, p. 35.

30. See statement by the chairman of the Yokohama and Tokyo Foreign Board of Trade in June 1941, *British Chamber of Commerce Journal* (Shanghai), September 1941, pp. 95-96.

668,206 in 1937, and is possibly 1.5 or even 2 million today. Among the territory's mineral and industrial products are: iron ore, pig iron, steel, graphite, tungsten, magnesium, gold, coal, lead, copper, zinc, cement, cotton goods, pulp, aluminum, synthetic fuel, and a wide range of chemicals, especially sulphate of ammonia, various acids, superphosphates, hardened oils, glycerine and explosives.[31]

An even greater development of both raw materials and industry has occurred in Manchuria. Coal production rose from 10.1 million metric tons in 1933 to 14.1 million in 1937. Iron ore production, which totaled 924,000 metric tons in 1931, was 2,257,000 in 1937. Output of both these minerals, especially iron ore, has probably increased considerably since then. In 1931 pig iron production was 342,000 metric tons; in 1937, 762,000. The total electric power capacity, which was 264,000 kilowatts in 1932 and 484,000 in 1937, is probably 1.5 million today. During the three years 1937-39, Japan invested 2 billion yen of capital and construction goods in Manchuria, and as a result mining and industry reached new peaks. Faced by the problems of home production, however, Japan was unable to maintain the flow of capital on the same level. Nevertheless, in addition to the commodities mentioned, Manchuria is producing shale oil, magnesite, chemicals (sulphate of ammonia, soda ash, caustic soda, etc.), aluminum and steel, to cite but a few.[32] There is the possibility, moreover, of developing production to higher levels. Iron ore and coal from Southeast Asia, if combined with additional Manchurian hydroelectric power, could put into production a probable pig-iron blast furnace capacity of 3 to 4 million tons not in full use in the past.

Economic Assets in Conquered Areas

Southeast Asia offers Japan many of the raw materials essential for life and industry. First of all, this means food, for the whole area—especially Indo-China, Thailand and Burma—produces not far from one-third of the world's rice. In the Philippines, Manila hemp, sugar, copra and coconut oil are important, but metals are the real prize. In 1940 the islands produced well over a million metric tons of iron ore, and significant amounts of chrome, manganese and copper ore. To this, Burma can add teak, nickel and petroleum. It produced 7,850,000 barrels of oil and substitutes in 1941, and 1,312 metric tons of nickel in 1936.[33] Beyond this, the Netherlands East Indies produced 63,500,000 barrels of petroleum in 1941, more than twice Japan's estimated consumption. Malayan and East Indian tin constitutes about half the world's production, and their rubber about four-fifths of the world's exports. In 1940 Japan secured almost 2 million tons of iron ore[34] from Malaya and nearly 60,000 tons of bauxite. Approximately four times as much bauxite, however, came from the East Indies, which could also supply Japan with manganese, copra, palm oil, kapok, sisal, sugar, cinchona and quinine.

It is sometimes suggested that the scorched-earth policy will prevent Japan from securing significant quantities of raw materials from Southeast Asia, but it must be remembered that two rich areas, Thailand and Indo-China, have barely been touched by war.[35] Furthermore, newspaper reports from the invaded areas all point to one conclusion, that—despite considerable destruction—stocks and productive facilities of great value were permitted to fall into the hands of the Japanese. Even where a well-organized scorched-earth plan was apparently carried out, as in the Indies, the fortunes of battle did not always allow the intended destruction to take place, although the short-term effects in reducing oil production may be very important.

More significant is the fact that, no matter how thoroughly the earth is scorched, Japan must almost inevitably profit wherever it can establish effective political control. This suggests an important conclusion—borne out by Chinese and Soviet experience—that a scorched-earth policy can be truly effective only if the people of the territory wage guerrilla warfare following the initial destruction. Otherwise, the invader will be free to take the fruits of the soil and, whatever the technical difficulties, to effect some restoration of productive facilities. Guerrilla warfare can, however, be conducted successfully only by people who are deeply convinced that they are fighting for themselves. In Southeast Asia such warfare would therefore require a clear-cut pledge of independence to the inhabitants of areas already conquered, combined with important immediate concessions and future guarantees to populations still outside Japanese control. It would also involve the arming and training of colonial peoples on an unprecedented scale.

31. Mitchell, *Japan's Industrial Strength*, cited, pp. 42-58; *Far Eastern Survey*, June 19, 1940, pp. 157-58.

32. *The Industrialization of Japan*, cited, pp. 406, 409; Mitchell, *Japan's Industrial Strength*, cited, pp. 59-87.

33. Garfias, *World Consumption of Petroleum*, cited; *Minerals Year Book, Review of 1940*, cited, p. 601.

34. It is significant that Japan took all the iron ore of Malaya and the Philippines before Pearl Harbor, and that this ore was produced by Japanese companies or companies in which Japanese capital played a prominent part.

35. Indo-China alone exported the following essential materials in 1940, in metric tons: anthracite coal, 1,550,343; white rice, 1,130,599; maize, 275,662; rubber, 64,896; tungsten, 355; tin, tin ore and slabs, 3,345; and zinc, 4,750. *Foreign Commerce Weekly*, November 29, 1941, p. 5.

The Liabilities of Conquest

It would be false to suggest that conquests in the south can furnish a complete solution of Japan's wartime raw materials problem. Leaving aside the question of stocks, there would still be a serious lack of phosphates, salt, lead, copper, mercury and potash.[36] Moreover, it is important to remember that production in the conquered areas can be restored and developed only through the use of native labor, secured by one of two methods: (1) forced labor at the minimum level of subsistence; (2) labor at a higher level, involving the delivery by Japan of various commodities, especially piece goods, formerly supplied in large part from other countries. The first of these methods could raise serious problems of native discontent, while the second would require Japan to use considerable shipping space, capital, raw materials and labor for light industry and its products in the midst of war. It is possible, of course, that a policy made up of a great deal of the first and a little of the second might work. There is no evidence, however, that the Japanese are viewing their position with great optimism, and reports of the Tokyo and Berlin radios indicate the expectation of considerable difficulties. The spokesman of the Japanese War Office is quoted as saying: "We must continue fighting, even if we have to pass through the greatest shortage of raw materials."[37]

It also must not be forgotten that, since Southeast Asia is essentially a non-industrial area, it cannot serve Japan as occupied Europe has served Germany. When Germany conquered Europe, it secured not only new raw materials but new machinery by which to process those materials. Japan, on the contrary, will have the problem of putting the new materials through its old, limited industrial machine. The flow of natural resources may, however, raise production to some degree by permitting full-capacity operation of various blast furnaces and non-ferrous metal-refining facilities that were previously handicapped by lack of materials.

36. Japan may be able to get phosphate from the island of Nauru, between the Gilbert and Solomon islands, unless prevented by Allied naval action.

37. *New York Herald Tribune*, February 16, 1942, p. 3.

CONCLUSION

Japan is a second-rate industrial power which has transformed itself into a first-rate military menace through rigid concentration on war production and stock-building. As a result of these preparations and recent conquests, Tokyo at the moment occupies a favorable position, particularly since the United States is supplying many theatres of war and cannot give the Far East the undivided weight of its industrial power. Yet, if it is to Japan's advantage to fight only in Asia, it is a disadvantage to fight there alone. Not only do we, on the other hand, have an invaluable ally in the fighting Chinese, but Soviet successes on the main European front, together with British activity in the West, are of the greatest significance for the outcome in Asia. Clearly, the defeat of Nazi Germany would spell the doom of the entire Axis.

Nevertheless, the bitterness and duration of the struggle necessary to crush Japan must not be minimized, nor can Americans again afford to play with the illusion of Japan's imminent economic collapse. It should now be plain that Tokyo can be defeated only by direct military measures and that its industrial inferiority and economic problems are of importance only to the extent that they permit us to place more and better ships, tanks, planes and guns at the front than it can make available. The chief need at present is to accelerate the production and delivery of materials, while developing a coordinated military and political strategy, in preparation for the ultimate counter-attack. By these means, although unable to prevent Tokyo from securing gains, we can slow down the process of consolidation, checking the formidable threat that is undoubtedly presented by the combination of Japanese industry and the resources of Southeast Asia.

In the April 15 issue of FOREIGN POLICY REPORTS:

HEMISPHERE SOLIDARITY IN THE WORLD CONFLICT *by David H. Popper*

A Guide to Material on Japan

By Ona K. D. Ringwood and Lawrence K. Rosinger

A VALUABLE, factual summary of the resources and productive power of Japan and its empire appears in Kate L. Mitchell's *Japan's Industrial Strength* (New York: Knopf, 1942, $1.50). This is a section of Miss Mitchell's broader work, *Industrialization of the Western Pacific* (New York: Institute of Pacific Relations,* 1942, $2.50). A detailed, useful analysis is found in *The Industrialization of Japan and Manchukuo, 1930-1940: Population, Raw Materials and Industry* (New York: Macmillan, 1940, $7.50), edited by E. B. Schumpeter, who also discusses the resources and industries of Japan, Korea and Manchuria. Three other contributors, E. F. Penrose, G. C. Allen and M. S. Gordon, respectively, discuss population and raw materials, industrial organization and development, and Japan's balance of international payments. Professor Allen has also published a penetrating, brief account of his subject, *Japanese Industry: Its Recent Development and Present Condition* (New York: I.P.R., 1940, $1.00).

Many significant items and articles on Japanese economic conditions before Pearl Harbor can be found in issues of *Foreign Commerce Weekly*, published by the United States Department of Commerce, as well as in that office's *International Reference Service* (e.g., "Economic Conditions in Japan During 1940 and Early 1941," June 1941, No. 33). Twenty Japanese articles on economic problems, written during the early period of the China war, are translated in *Industrial Japan: Aspects of Recent Economic Changes as Viewed by Japanese Writers* (New York: I.P.R., 1941, $2.00). Japanese agriculture is discussed in two mimeographed publications: *Aspects of Japanese Agriculture* (New York: I.P.R., 1942, $1.50), by Shiroshi Nasu; and *Statistics of Japanese Agriculture: With Introductory Notes* (New York: I.P.R., 1942, $1.00), compiled by Andrew J. Grajdanzev. Two essential commodities are considered by Louis E. Frechtling in "Japan's Oil Supplies" (*Amerasia*, July 1941, pp. 197-201), and Alvin Barber in "Steel in Japan's War Economy" (*Amerasia*, August 1941, pp. 256-65).

A brief, but comprehensive discussion of Japan's development since the invasion of Manchuria—including the structure of government, the trend toward military Fascism, and state control of economy and opinion—is found in Hugh Borton's *Japan Since 1931: Its Political and Social Developments* (New York: I.P.R., 1940, $1.25). Japan's political structure and problems are also analyzed by Robert Karl Reischauer in *Japan: Government—Politics* (New York: Nelson, 1939, $2.00), and by Charles B. Fahs in *Government in Japan: Recent Trends in Its Scope and Operation* (New York: I.P.R., 1940, $1.00). E. H. Norman has made a penetrating contribution toward the understanding of basic problems attending the development of modern Japan in *Japan's Emergence as a Modern State* (New York: I.P.R., 1940, $2.00). In "Japan's 'New Structure'" (*F.P.R.*,† April 15, 1941), T. A. Bisson surveys the internal struggle over the organization of a totalitarian economic and political system.

Relations between the United States and Japan during the past stormy decade are considered in T. A. Bisson's *American Policy in the Far East: 1931-1940* (New York: I.P.R., 1940, $1.75), to which a concluding chapter by Miriam S. Farley has been added. Twenty-eight articles on Japanese economics and politics and American-Japanese relations are found in *America and Japan* (Philadelphia: American Academy of Political and Social Science, 1941, $2.00), edited by William P. Maddox. An excellent, detailed analysis of the course of Japanese aggression in Indo-China is presented by Andrew Roth in *Japan Strikes South* (New York: I.P.R., 1941, 25c), while Carl Crow gives the text of the much-discussed Tanaka Memorial with a commentary in *Japan's Dream of World Empire: The Tanaka Memorial* (New York: Harper, 1942, $1.25). A valuable analysis of Japanese politics was made some years ago by two Soviet writers, O. Tanin and E. Yohan, in *Militarism and Fascism in Japan* (New York: International Publishers, 1934, $2.50).

Many accounts, of varying quality, have been written by Western journalists who have visited or lived in Japan. In *The Japanese Enemy: His Power and His Vulnerability* (New York: Knopf, 1942, $1.25), Hugh Byas, although sometimes on debatable ground, dispels certain misconceptions about Japan and declares that the United Nations' ultimate victory will not be won easily. In *Volcanic Isle* (New York: Doubleday, Doran, 1941, $3.00), Wilfrid Fleisher presents an interesting and very informative survey. A stimulating discussion is to be found in *The Setting Sun of Japan* (New York: Random House, 1942, $3.00), by Carl Randau and Leane Zugsmith. They are confident that the superior productive power of the United Nations will bring victory, but do not underestimate Japan's supplies of essential materials. Nor do they see any prospect of popular revolt in Japan except as a result of serious military defeats.

*Hereafter abbreviated as I.P.R.

†*Foreign Policy Reports.* Available from the Foreign Policy Association, 22 East 38th Street, New York, N. Y., at 25 cents each.